CLAIMS

1. A method for the continuous vacuum cleaning of a substrate, characterized in that:

- a species is chosen that has a low sputtering efficiency and is chemically active with regard to the soiling matter;
- using at least one linear ion source, a plasma is generated from a gas mixture comprising predominantly the species having a low sputtering efficiency, especially one based on oxygen; and
- at least one surface portion of said substrate optionally associated with a layer is subjected to said plasma so that said ionized species at least partly eliminates, by chemical reaction, the soiling matter possibly adsorbed or located on said surface portion.

2. The cleaning method as claimed in claim 1, characterized in that it is followed, without breaking vacuum, by at least one phase of depositing at least one thin film on said surface portion of said substrate, this deposition phase being carried out by a vacuum deposition process.

3. The method as claimed in claim 2, characterized in that the deposition process consists of a cathode sputtering process, especially magnetically enhanced sputtering.

4. The method as claimed in claim 2, characterized in that the vacuum deposition process consists of a process based on CVD.

5. The method as claimed in one of claims 1 to 4, characterized in that a step of causing relative movement between the ion source and the substrate is carried out.

6. The method as claimed in one of claims 1 to 5,

characterized in that the linear ion source is positioned with respect to the surface portion of the substrate in such a way that the average sputtering efficiency of the ionized species does not allow sputtering of said surface portion.

7. The method as claimed in one of claims 1 to 6, characterized in that the linear ion source is positioned within a plant of industrial size.

8. The method as claimed in one of claims 1 to 7, characterized in that the linear ion source generates a collimated beam of ions with an energy between 0.5 and 2.5 keV, preferably between 1 and 2 keV, especially about 1.5 keV.

9. The method as claimed in one of claims 1 to 3 and 5 to 8, characterized in that it is carried out within at least one chamber intended for depositing thin films by vacuum sputtering, in a pumping chamber, or instead of a cathode, or in an intermediate chamber located between the latter items, or else within an airlock for introducing the substrates.

10. The method as claimed in one of claims 1 to 9, characterized in that two different surface portions of a substrate are cleaned simultaneously or successively, using at least said linear ion source.

11. A substrate obtained by implementing the method as claimed in any one of claims 1 to 10, characterized in that the substrate is provided with a multilayer coating having a high reflection for thermal radiation, the coating of which consists of at least one sequence of at least five successive layers, namely:

- a first layer based on metal oxide or semiconductor, especially chosen from tin oxide, titanium oxide and zinc oxide;
- a layer of a metal oxide or semiconductor,

especially one based on zinc oxide, deposited on the first layer;

- a silver layer;
- a metal layer chosen especially from nickel chromium, titanium, niobium and zirconium, deposited on the silver layer; and
- an upper layer comprising a metal oxide or semiconductor, especially chosen from tin oxide, zinc oxide and titanium oxide, deposited on this metal layer.

12. The substrate obtained by implementing the method as claimed in any one of claims 1 to 10, characterized in that the substrate is provided with a thin-film multilayer comprising an alternation of n functional layers A having reflection properties in the infrared and/or in solar radiation, especially based on silver, and of (n + 1) coatings B where $n \geq 1$, said coatings B comprising a layer or superposition of layers of a dielectric based in particular on silicon nitride, or on a mixture of silicon and aluminum, or on silicon oxynitride, or on zinc oxide, so that each functional layer A is placed between two coatings B, the multilayer also including layers C that adsorb in the visible, especially based on titanium, on nickel chromium or on zirconium, these layers being optionally nitrided and located above and/or below the functional layer.

13. The substrate obtained by implementing the method as claimed in any one of claims 1 to 10, characterized in that the substrate is provided with a thin-film multilayer comprising an alternation of one or more n functional layers having reflection properties in the infrared and/or in solar radiation, especially of essentially metallic nature, and of (n + 1) "coatings", where $n \geq 1$, said multilayer being composed, on the one hand, of one or more layers, including at least one layer made of a dielectric, especially based on tin

oxide or nickel chromium oxide, and, on the other hand, of at least one functional layer made of silver or of a metal alloy containing silver, the (each) functional layer being placed between two dielectric layers.

14. The substrate obtained by implementing the method as claimed in any one of claims 1 to 10, characterized in that it comprises a thin-film multilayer comprising at least one sequence of at least five successive layers, namely:

- a first layer, especially based on silicon nitride;
- a dielectric layer, especially based on nickel chromium or on titanium, deposited on the first layer;
- a functional layer having reflection properties in the infrared and/or in solar radiation, especially based on silver;
- a metal layer, especially chosen from nickel chromium, titanium, niobium and zirconium, on the silver layer; and
- an upper layer based on silicon nitride, deposited on this metal layer.

15. The substrate obtained by implementing the method as claimed in any one of claims 1 to 10, provided with a thin-film multilayer that acts on solar radiation, characterized in that said multilayer comprises at least one functional layer based on a partially or fully nitrided metal, said metal belonging to the group consisting of niobium, tantalum and zirconium, said functional layer being surmounted by at least one overlayer based on aluminum nitride or oxynitride, silicon nitride or oxynitride, or a mixture of at least two of these compounds, said multilayer also including, between said substrate and said functional layer, at least one underlayer made of a transparent dielectric, especially chosen from silicon and/or aluminum nitride, silicon and/or aluminum oxynitride and silicon oxide.

16. The substrate obtained by implementing the method as claimed in any one of claims 1 to 10, which includes, on at least one of its sides, an antireflection coating made of a thin-film multilayer made of dielectrics having alternately high and low refractive indices, characterized in that the high-index first layer and/or the high-index third layer are based on one or more metal oxides chosen from zinc oxide, tin oxide and zirconium oxide, or based on one or more nitrides chosen from silicon nitride and/or aluminum nitride, or based on tin/zinc/antimony mixed oxides or based on silicon/titanium or titanium/zinc mixed oxides, or based on mixed nitrides chosen from silicon nitride and zirconium nitride, and the low-index second layer and/or the low-index fourth layer are based on silicon oxide, silicon oxynitride and/or silicon oxycarbide or on a silicon aluminum mixed oxide.

17. The substrate obtained by implementing the method as claimed in any one of claims 1 to 10, characterized in that the substrate includes, on at least one of its sides, an electrochemical device, especially an electrically controllable system of the glazing type and having variable optical and/or energy properties, of a photovoltaic device or within an electroluminescent device.

18. The substrate as claimed in any one of claims 11 to 17, characterized in that it is a substrate intended for the automobile industry, especially a sunroof, a side window, a windshield, a rear window or a rearview mirror, or single or double glazing for buildings, especially interior or exterior glazing for buildings, a store showcase or counter, which may be curved, glazing for protecting objects of the painting type, an antidazzle computer screen, or glass furniture.

19. The substrate as claimed in claim 18, characterized in that it is curved.